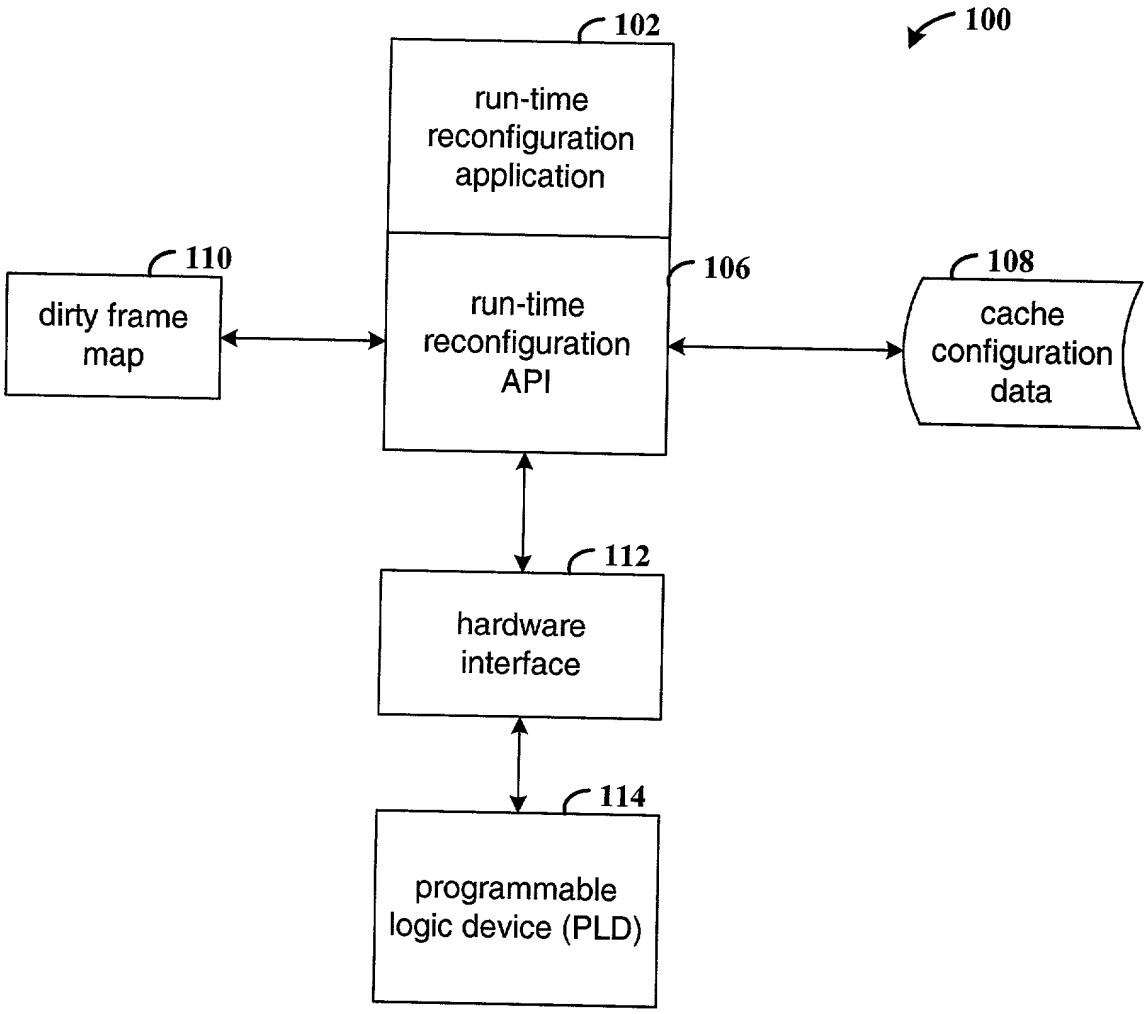
100
102
run-time reconfiguration application
110
dirty frame map
106
run-time reconfiguration API
108
cache configuration data
112
hardware interface
114
programmable logic device (PLD)

FIG. 1

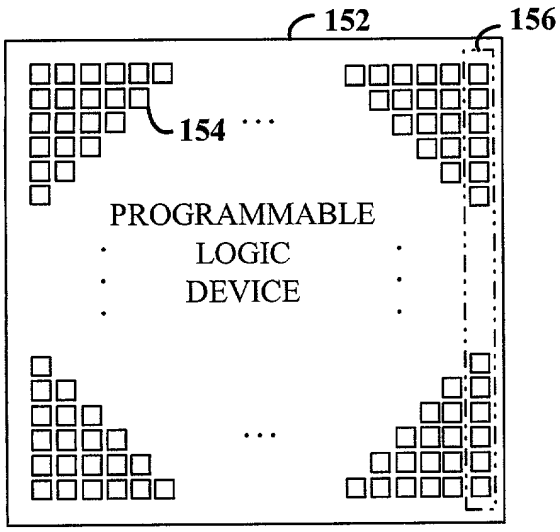
152
156
154
PROGRAMMABLE
LOGIC
DEVICE

FIG. 2

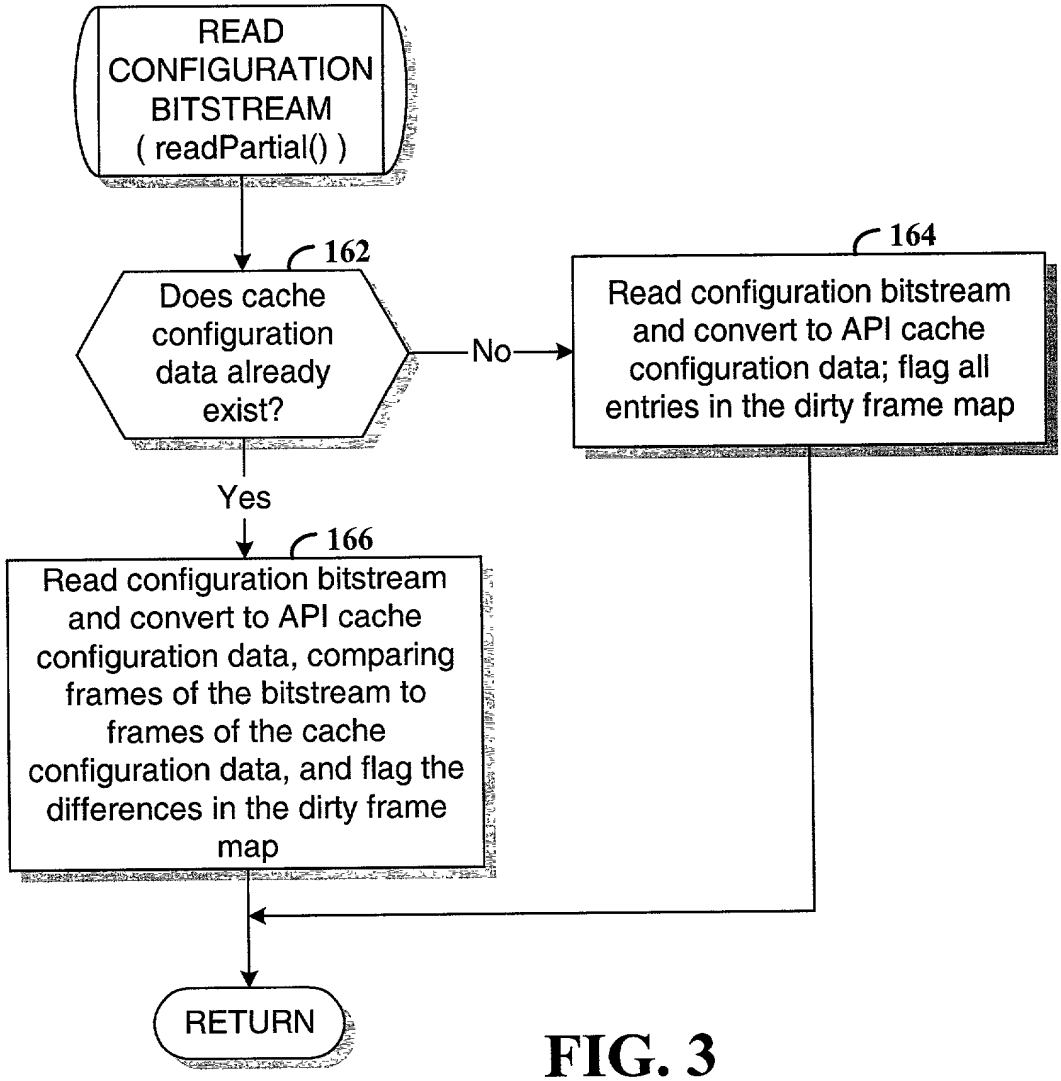
READ
CONFIGURATION
BITSTREAM
(readPartial())
162
Does cache
configuration
data already
exist?
No
164
Read configuration bitstream
and convert to API cache
configuration data; flag all
entries in the dirty frame map
Yes
166
Read configuration bitstream
and convert to API cache
configuration data, comparing
frames of the bitstream to
frames of the cache
configuration data, and flag the
differences in the dirty frame
map
RETURN

FIG. 3

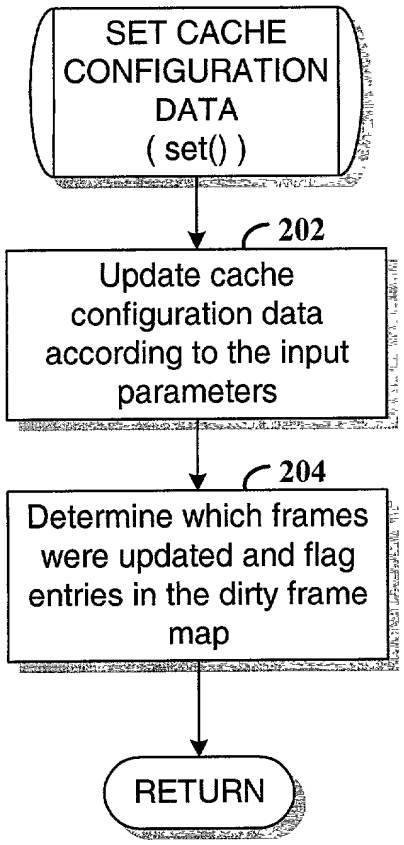
SET CACHE CONFIGURATION DATA (set())
202
Update cache configuration data according to the input parameters
204
Determine which frames were updated and flag entries in the dirty frame map
RETURN

FIG. 4

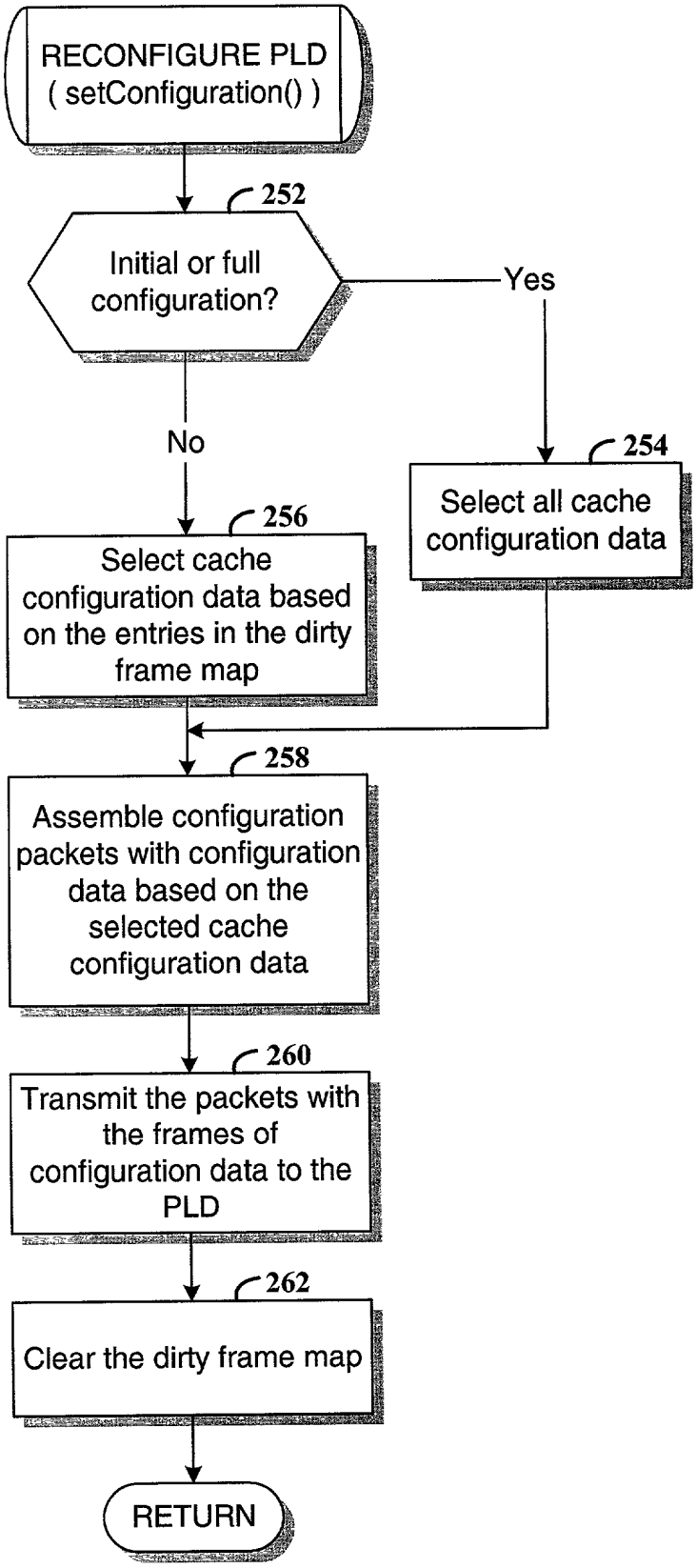
RECONFIGURE PLD (setConfiguration())
252
Initial or full configuration?
Yes
No
254
Select all cache configuration data
256
Select cache configuration data based on the entries in the dirty frame map
258
Assemble configuration packets with configuration data based on the selected cache configuration data
260
Transmit the packets with the frames of configuration data to the PLD
262
Clear the dirty frame map
RETURN

FIG. 5

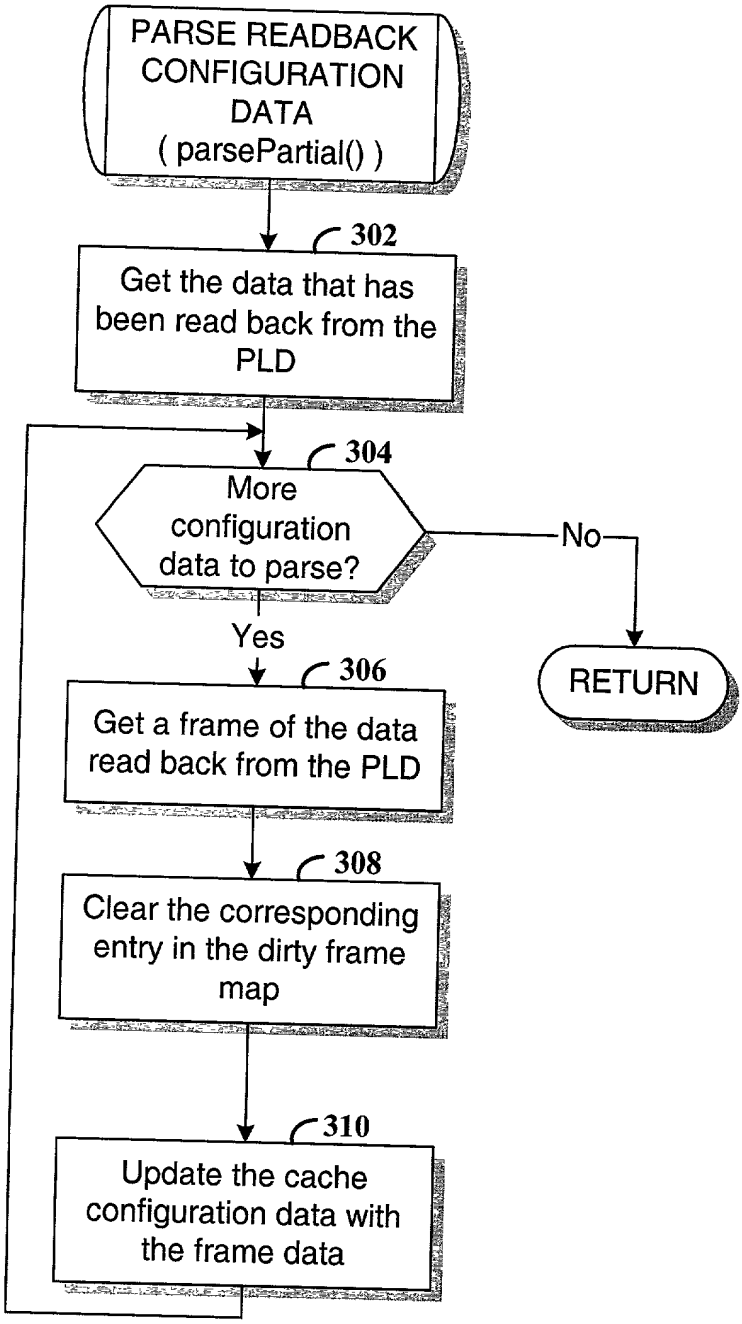
PARSE READBACK CONFIGURATION DATA (parsePartial())
302
Get the data that has been read back from the PLD
304
More configuration data to parse?
No
RETURN
Yes
306
Get a frame of the data read back from the PLD
308
Clear the corresponding entry in the dirty frame map
310
Update the cache configuration data with the frame data

FIG. 6